Innovation Project Proposal

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Yield Crop Estimation Based on Remote Sensing Data

19th September 2024

OVERVIEW

Blue Marble (BM) is a parametric microinsurance company providing services, predominantly to underserved farmer communities**.** At the moment weather data is used as a proxy for final crop yield. Consequently, only weather related risks are insured. With the ability to predict crop yield directly from satellite images more comprehensive cover would be possible. The aim of the project is to bring this goal one step closer to realisation.

GOALS

1. Advance remote sensing crop yield estimation at Blue Marble
2. Deliver PoC ML model

APPROACH

This project will follow the approach established in research papers and build on top of work already performed at Blue Marble. The starting point for the project is the codebase provided by the Blue Marble and the following articles Deep Gaussian Process for Crop Yield Prediction Based on Remote Sensing Data and Deep Transfer Learning for Crop Yield Prediction with Remote Sensing Data.

The first aim is to improve training procedure and model hyperparameters such that the model generalises better to unseen data.

Time permitting, in subsequent steps another approach will be tested on the same data using an alternative ML model. The following research indicates possible avenues for further development: Vision Transformer for Multispectral Satellite Imagery: Advancing Landcover Classification, MMST-ViT: Climate Change-aware Crop Yield Prediction via Multi-Modal Spatial-Temporal Vision Transformer